FILE: RADAR AN/PPS-9

5-76

ELECTRONIC NEWS 4 MARCH 68

Proposal Details Reported For Army's Portable Radar

WASHINGTON. — First details of the much-sought AN/PPS-9 Army hand-held combat radar proposals were revealed by competitors here.

General Dynamics/Electronics division, which holds one of two feasibility contracts for the 10-pound surveillance radar, said it proposed a continuous wave Doppler radar. Radio Corp. of America holds the other study contract. Each study reportedly is funded at $60,000.

Industry sources expect the Army Electronics Command, Fort Monmouth, N. J., to seek production bids shortly, as reported earlier in these columns. Industry interest is sizzling hot—since the frontline troop radar potential could run into thousands of sets.

Two other companies — Sylvania Electric Products, Inc., and Cutler-Hammer's Airborne Instrument Laboratories — have gone ahead with independent programs to develop units expected to be entered in the production competition.

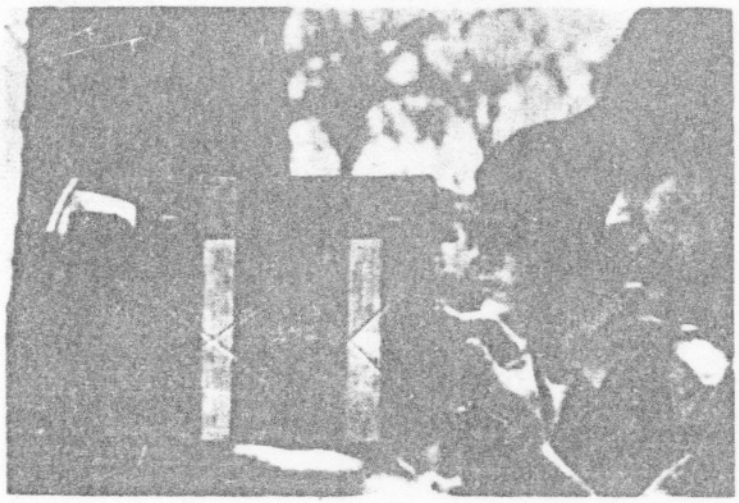
Airborne Instrument Laboratories, producer of the 95-pound PPS-5, used by the Army, also is developing an X-band unit, sources indicated.

The new hand-held radar presumably would replace the PPS-5, which operates at 16-16.5 gigacycles and requires a three-man team to tote and operate. While its detection ranges of 5000 and 10,000 meters for personnel and vehicles, respectively, are superior to the PPS-6 ranges of 1500 and 6000 meters, military users prefer the greater mobility, X-band capability, and solid-state reliability of the smaller package.

RCA's system is said to be an improved version of the two-pound, X-band system it first offered to the Army in an unsolicited proposal late in 1966. Range of the RCA unit has increased steadily from 250 meters for first prototypes to 1500 meters for personnel detection.

It is believed the unit it proposes for the PPS-9 may have its range extended further in addition to an auxiliary communications capability, digital readout, while holding weight down to two pounds, four ounces plus batteries for a total weight of about 10 pounds.

The AN/PPS-9 combat radar proposed by General Dynamics is a militarized version of its company-developed Model 183 radar. The firm gave details of the company-built radar — most of which are used in the AN/PPS-9 version, it is understood.



Army

FLASHLIGHT RADAR – Pfc Stanley Lombardi (San Andreas, Calif.) tracks a vehicle with new radar unit while SP4 Edgar Hummel (Washington, D.C.) waits for visual contact. The experimental radar produces an audible signal when an object passes through its invisible beam. It ignores stationary terrain and picks out only moving objects and men, even through dense fog, darkness and light foliage.

Army Perfecting Radar Device That a Man Can Carry and Aim

Associated Press Wirephoto

Harold Tate with experimental miniature radar device

Special to The New York Times.

WASHINGTON, Feb. 28 — The Army said today that it was developing a small radar device that could be held like a submachine gun and aimed to spot moving targets a mile away.

Harold Tate, a 42-year-old electrical engineer at the Army's Signal Corps Laboratory in Fort Monmouth, N. J., demonstrated the radar for newsmen.

Mr. Tate heads the six-man team that has been working on the hand-held radar for two years. It weighs ten pounds and has a separate four-pound battery. It looks something like a large news camera with a radar disk mounted in front.

A demonstration was set up in a Pentagon office and the device was aimed at traffic alongside the Potomac River. As autos and pedestrians moved past, 1,000 yards away, a loudspeaker emitted noises. A small

Continued on Page 14, Column 3

THURSDAY, MARCH 1, 1962.

ARMY DEVELOPING PORTABLE RADAR

Continued From Page 1, Col. 4

screen showed the familiar radar blips.

Mr. Tate said the radar could be aimed like a flashlight over rolling or flat terrain, even through light woods if the foliage was not too thick, and that it distinguished between the movements of vehicles and people.

Whooshes and Whumps

A vehicle, Mr. Tate said, gives off a whooshing sound on the radar loudspeaker; a man walking, swinging his arms freely, comes across with a "whump, whump, whump."

The whooshing and whumping were not clearly distinguishable to the untrained ears of newsmen at the demonstration. Mr. Tate said it would take two weeks to teach a man to make the distinctions.

One of the chief advantages of the radar he is developing, Mr. Tate went on, is that it can be used effectively in fog and at night.

The Army is developing it for front-line surveillance missions. Mr. Tate said he expected it to be ready for adoption in about two years. A single device would cost $1,500 to $2,000.

The radar package uses tiny tubes and transistors. Its battery can last through twelve hours of continuous operation. For prolonged surveillance, the radar can be set up on a small tripod.

Mr. Tate, the son of a truck driver, has been with the Army Signal Corps for nearly twenty years. He is a native of Goldsboro, N. C., and was graduated from North Carolina Agriculture and Technical College in 1942 with a bachelor's degree in electrical engineering.

TWO YEARS AWAY

10-Lb. Radar Shown

By a Times Staff Writer

WASHINGTON—A 10-pound combat radar that can spot moving targets more than a mile away has been demonstrated for Pentagon newsmen. Spokesmen said that the radar which can be held like a submachine gun, won't be available to troops for at least two years.

Designed at the Signal Research and Development Laboratory, Fort Monmouth, N.J., the radar produces a clearly audible signal when an object passes through its invisible beam. Built into the experimental radar is the ability to ignore terrain features and pick up only moving objects.

Vehicles and humans moving toward the radar are detected by the beam. An experienced operator can detect a tank by its two-pitched radar sound, which is caused by the separate motions of the chassis and its moving tracks. A single whine which varies with speed indicates that a car or truck is approaching.

Soldiers walking or running into the beam cause the radar to emit a whooshing noise caused by leg and body action. As the different sounds are recorded, the operator can read the range of the target on a dial.

The Army said that vehicle and human movement can be detected "even through fog, darkness, and light foliage."

Aimed like a flashlight, the experimental radar unit can look for targets at ranges officially listed as more than a mile and a quarter.

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IN ITS PRESENT state the radar unit looks like a box about the size of a portable typewriter fitted with a pistol grip to aim the search beam. Controls are on the rear of the box.

The Army said that as the operator monitors sounds, he can, if necessary, attach an auxiliary unit to the radar for a visual display. This provides additional information on the distance and character of the suspected target.

Power for the system is a lightweight belt battery that weighs about four pounds. By refining the radar and battery, the Signal Corps hopes that the combined weight of the two will not exceed 10 pounds. Spokesmen said that the present batteries provide enough power for 12 hours of continuous operation.

The Army claims that the compact radar is the first of its kind light enough to be operated and carried by one man. The Signal Corps said it was built to prove that a flashlight radar was feasible for frontline surveillance missions.

In the demonstration here the set appeared easy to operate. It was said that it would take "only a little practice for an operator to distinguish the characteristic sounds of different moving targets."

When prolonged use of the radar is required, the system can be mounted on a tripod, officials said.

SP5 HENRY M. KORTELING operates the Army's new experimental hand-held radar during tests at the Army Signal Research and Development Laboratory, Fort Monmouth. The 10-pound set can detect enemy movements more than a mile away.

Army Designs 10-Lb. Radar For Combat

WASHINGTON. — The Army has developed a miniature 10-pound radar that is held like a submachine gun and can spot moving targets more than a mile away, Signal Corps officials said here last week.

The experimental device designed at the Signal Research & Development Laboratory, Fort Monmouth, N. J., produces an audible signal when an object passes through its beam. According to officials here, it ignores stationary terrain and picks out only moving objects.

It is described as the "world's smallest combat radar." When the operator hears a target, he can read its range directly on a dial. Officials noted that with little experience an operator can easily detect the difference between a tank, a jeep, or soldiers moving toward the radar—each giving its own characteristic sound.

The experimental model is contained in a box about the size of a portable typewriter. This is fitted with a pistol grip. Controls are in easy reach on the back surface.

Visual Display.

The operator monitors the sounds and, if necessary, can attach an auxiliary unit for a visual display. This gives more detailed information on the distance and character of a suspected target.

The system is powered by a lightweight belt battery that lasts through 12 hours of continuous operation. It employs advanced miniature circuitry throughout and contains only two tubes. All other tube functions are performed by transistors and other semiconductor devices.

Officials said the system was developed to prove the feasibility of such a radar for front-line surveillance missions.

RADAR GUN: Soldier is shown operating the Army's new experimental hand-held radar during tests at the Army Signal Research and Development Laboratory.

Tiny Radar Is Unveiled

10-Pound Unit Can Spot Target Over Mile Away

FORT MONMOUTH — A miniature combat radar, a 10-pound unit that is held like a sub-machine gun and can spot moving targets more than a mile away, has been developed by the Army.

The experimental, hand-held flashlight radar, designed at the U.S. Army Signal Research and Development Laboratory, here, produces an audible signal when an object passes thru its invisible beam. It ignores stationary terrain, and picks out only moving objects.

A tank, a jeep, or soldiers moving toward the radar are clearly detected, and each gives a characteristic radar sound. An experienced operator can spot a tank by its two-pitched radar sound, caused by the separate motions of the vehicle body and its turning tracks. The radar signal from a jeep or truck is a single whine which varies with speed. Soldiers walking create another distinctive sound caused by leg and body motion.

Such movements can be detected even thru fog, darkness, and light foliage.

Like Flashlight

The new radar is aimed like a flashlight. It can be set to search for targets at ranges from approximately 100 yards to over a mile and a quarter. When the operator hears a target, he can read its range directly on a dial.

The first experimental model of the radar is a box about the size of a portable typewriter fitted with a pistol grip and an 11 inch radar dish to aim the search beam. Controls are in easy reach on the back surface of the set.

The operator monitors the sounds and, if necessary, he can attach an auxiliary unit to the set for visual display. This gives more detailed information on the distance and character of a suspect target.

The entire system is powered by a lightweight belt battery that lasts thru 12 hours of continuous operation. For prolonged surveillance from a strategic location, the set can be mounted

RADAR "GUN"—Sp5 Henry W. Korteling operates the Army's new experimental hand-held radar during tests at the U. S. Army Signal Research and Development Laboratory here. The 10-pound set, which is the world's smallest combat radar, can detect enemy movements more than a mile away. (USASRDL Photo)

Easy Operation

The tiny radar is extremely easy to operate, and it takes only a little practice for an operator to distinguish the characteristic sounds of different moving targets.

The radar employs advanced miniature circuitry thruout and contains only two tubes. All other tube functions are performed by tiny transistors and other semiconductor devices.

It is the first radar of its kind light enough to be carried and operated by a single soldier. It was built by the Army Signal Corps to prove that a flashlight radar was feasible for front-line surveillance missions.

The set was conceived, designed and built by a team of engineers headed by Harold Tate of Fair Haven at the Signal Laboratory's Advanced Radar Development Branch, which is directed by John Ackerman, Neptune.

Red Bank Register

2 Mar 62

Designed At Fort

Hand-Held Radar Can Spot

FORT MONMOUTH — A miniature combat radar, a 10-pound unit that is held like a sub-machine gun and can spot moving targets more than a mile away, has been developed by the Army.

The experimental hand-held flashlight radar, designed at the U.S. Army Signal Research and Development Laboratory here, produces an audible signal when an object passes through its invisible beam. It ignores stationary terrain, and picks out only moving objects.

A tank, a jeep, or soldiers moving toward the radar are clearly detected, and each gives a characteristic radar sound. An experienced operator can spot a tank by its two-pitched radar sound, caused by the separate motions of the vehicle body and its turning tracks. The radar signal from a jeep or truck is a single whine which varies with speed. Soldiers walking create another distinctive sound caused by leg and body motion.

Even Through Fog

Such movements can be detected even through fog, darkness and light foliage.

The new radar is aimed like a flashlight. It can be set to search for targets at ranges from approximately 100 yards to more than a mile and a quarter. When the operator hears a target, he can read its range directly on a dial.

The first experimental model of the radar is a box about the size of a portable typewriter fitted with a pistol grip and an 11-inch radar dish to aim the search beam. Controls are in easy reach on the back surface of the set.

Easy to Operate

The operator monitors the sounds and, if necessary, he can attach an auxiliary unit to the set for visual display. This gives more detailed information on the distance and character of a suspect target.

The entire system is powered by a lightweight belt battery that lasts through 12 hours of continuous operation. For prolonged surveillance from a strategic location, the set can be mounted on a small tripod.

The tiny radar is easy to operate, and it takes only a little practice for an operator to distinguish the characteristic sounds of different moving targets.

Fair Haven Man

The radar employs advanced miniature circuitry throughout and contains only two tubes. All other tube functions are performed by tiny transistors and other semiconductor devices.

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Newark Star-Ledger 1 Mar 62

Unveil portable radar to spot foe in night combat

WASHINGTON (UPI)—The Army yesterday unveiled a 10-pound radar set that can be held like a submachine gun and can spot moving targets a mile or more away.

The device was developed at the Army Signal Corps Laboratories in Fort Monmouth, N.J., under the direction of Harold Tate, a 42-year-old graduate of the North Carolina Agricultural and Technical College. He studied radar at Harvard and the Massachusetts Institute of Technology.

Tate demonstrated for newsmen that the set could detect automobiles moving on a distant highway, and could spot men walking at great distances. It contains an audio-converter which produces a high whine for moving vehicles, and a swishing sound for walking men.

The device, expected to cost between $1,500 and $2,000 per set, is designed for use by combat troops operating in fog or darkness.

The Army said the radar can also penetrate "light foliage," such as normally wooded areas, but would not be useful in heavy jungles.

Army Develops Portable Radar To Spot Targets

FT. MONMOUTH — A miniature combat radar, a ten-pound unit that is held like a sub-machine gun and can spot moving targets more than a mile away, has been developed by the Army.

The experimental hand held flash light radar, designed at the U.S. Army Signal Research and Development Laboratory, here, produces an audible signal when an object passes through its invisible beam. It ignores stationary terrain, and picks out only moving objects.

A tank, a jeep, or soldiers moving toward the radar are clearly detected, and each gives a characteristic radar sound. An experienced operator can spot a tank by its two-pitched radar sound, caused by the separate motions of the vehicle body and its turning tracks. The radar signal from a jeep or truck is a single whine which varies with speed. Soldiers walking create another distinctive sound caused by leg and body motion.

Such movements can be detected even through fog, darkness and light foliage.

The new radar is aimed like a flashlight. It can be set to search for targets at ranges from approximately 100 yards to over a mile and a quarter. When the operator hears a target, he can read its range directly on a dial.

8 - Long Branch DAILY RECORD Friday, March 2, 1962

[illegible] Henry [illegible] operates [illegible] Army's new [illegible] Army [illegible] Research [illegible]

The first experimental model of the radar is a box about the size of a portable typewriter fitted with a pistol grip and an 11 inch radar dish to aim the search beam. Controls are in easy reach on the back surface of the set.

The operator monitors the sound and, if necessary, he can attach an auxiliary unit to the set for visual display. This gives more detailed information on the distance and character of a suspect target.

The entire system is powered by a lightweight belt battery that lasts through 12 hours of continuous operation. For prolonged surveillance from a strategic location, the set can be mounted on a small tripod.

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DEVELOPED AT FT. MONMOUTH

Hand-Held Radar Spots Enemy

FT. MONMOUTH — A miniature combat radar, a 10-pound unit that is held like a submachine gun and can spot moving targets more than a mile away, has been developed by the Army.

The experimental hand-held flashlight radar, designed at the Army Signal Research and Development Laboratory, Ft. Monmouth, produces an audible signal when an object passes through its invisible beam. It ignores stationary terrain, and picks out only moving objects.

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Such movements can be detected even through fog, darkness, and light foliage.

Range Over a Mile

The new radar is aimed like flashlight. It can be set to search for targets at ranges from approximately 100 yards to over a mile and a quarter. When the operator hears a target, he can read its range directly on a dial.

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Sounds Identified Readily

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The radar employs advanced miniature circuitry throughout and contains only two tubes. All other tube functions are performed by tiny transistors and other semiconductor devices.

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Sp. 5 Henry W. Korteling operates the Army's new hand-held radar "gun" during tests at the Signal Research and Development Laboratory, Ft. Monmouth. The 10-pound set, the world's smallest combat radar, can detect enemy movements more than a mile away.

10-Pound Radar Eye Is Unveiled by Army

United Press International

The Army yesterday unveiled a 10-pound radar set that can be held like a submachine gun and can spot moving targets a mile or more away.

The device was developed at the Army Signal Corps Laboratories in Fort Monmouth, N. J., under the direction of Harold Tate, a 42-year-old graduate of the North Carolina Agricultural and Technical College. He studied radar at Harvard and the Massachusetts Institute of Technology.

Tate demonstrated for newsmen that the set could detect automobiles moving on a distant highway and could spot men walking at great distances. It contains an audio-converter that produces a high whine for moving vehicles and a swishing sound for walking men.

The device, expected to cost between $1800 and $2000 a set, is designed for use by combat troops operating in fog or darkness.

The Army said the radar can also penetrate "light foliage" such as normally wooded areas, but would not be useful in heavy jungles.

Signal Corps Hand Radar Set Can Detect Man Mile Away

A hand-held radar set that could detect a man sneaking down a jungle trail a mile away was demonstrated by the Army Signal Corps today.

Lacking a true jungle in the Pentagon, its developer, Harold Tate, trained the transmitter on a man walking through the trees near the building. As the man walked, the device gave off low pitched woomp-woomp-woomp noises in time with his swinging arms and legs, and showed the direction and distance of the walker.

"A well-trained man can detect a moving person or pick up a vehicle, distinguishing trucks from tanks and estimating the speed and direction," Mr. Tate said.

Cars passing by the Pentagon created a high-pitched whine on the radar set and produced a blip on a small scope that gave the car's distance from the set.

Mr. Tate said the set could be used on a jungle trail or could cover any kind of terrain not densely blocked by trees. It could be useful in the Vietnamese guerrilla war, it was indicated.

It probably will take about two years to produce the set for combat use. The cost is estimated at $1,500 to $2,000 a set.

The laboratory device weighs about 14 pounds, including a 12-hour battery. Mr. Tate believes this can be reduced to 10 pounds in the operational model. It is about the size of a portable typewriter, held by pistol grips and aimed like a searchlight.

The set was developed by the Army Signal Research and Development Laboratory, Fort Monmouth, N. J.

Mr. Tate, the project officer, is an electrical engineer, a graduate of the North Carolina Agricultural and Technical College and of war-time radar schools at Harvard and thhe Massachusetts Institute of Technology.

An Army Signal Corpsman operates an experimental hand-held radar set for detecting enemy movements.—U. S. Army Photo.

THE EVENING STAR
Washington, D. C., Thursday, March 1, 1962

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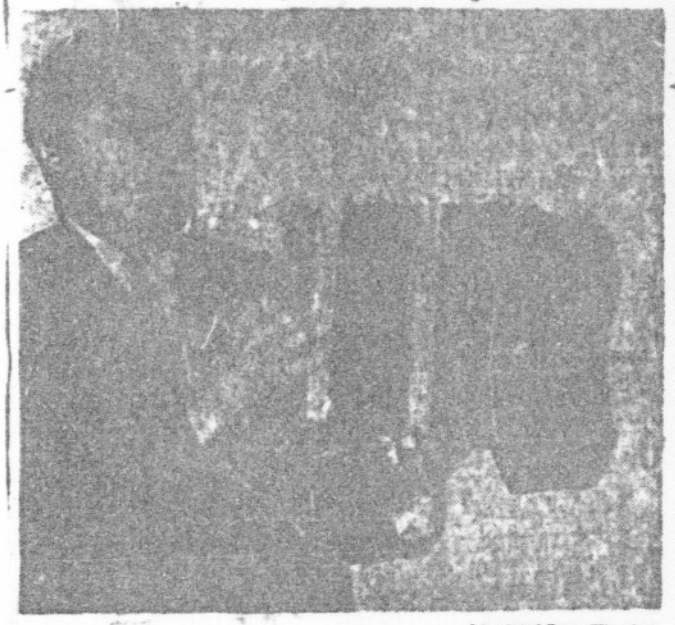
Army Perfecting Radar Device That a Man Can Carry and Aim



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Continued on Page 14, Column 5

ARMY DEVELOPING PORTABLE RADAR

Continued From Page 1, Col. 4

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NEWS FROM ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

INFORMATION OFFICE
Phone: 535-1911

Release Date:

GROUND SURVEILLANCE RADAR -- Tripod mounted or hand carried, the AN/PPS-6 ground surveillance radar can detect, locate and identify men or vehicles.

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HEADQUARTERS, FORT MONMOUTH, N. J.
INFORMATION OFFICE
Public and Technical Information Division
Telephone: 53-52185

IMMEDIATE RELEASE: Release Nr. 89

ARMY DEVELOPS HAND-HELD RADAR TO SPOT TARGETS A MILE AWAY

FORT MONMOUTH, N. J. -- A miniature combat radar, a ten-pound unit that is held like a sub-machine gun and can spot moving targets more than a mile away, has been developed by the Army.

The experimental hand-held flashlight radar, designed at the U. S. Army Signal Research and Development Laboratory, Fort Monmouth, N. J., produces an audible signal when an object passes through its invisible beam. It ignores stationary terrain, and picks out only moving objects.

A tank, a jeep, or soldiers moving toward the radar are clearly detected, and each gives a characteristic radar sound. An experienced operator can spot a tank by its two-pitched radar sound, caused by the separate motions of the vehicle body and its turning tracks. The radar signal from a jeep or truck is a single whine which varies with speed. Soldiers walking create another distinctive sound caused by leg and body motion.

Such movements can be detected even through fog, darkness and light foliage.

The new radar is aimed like a flashlight. It can be set to search for targets at ranges from approximately 100 yards to over a mile and a quarter. When the operator hears a target, he can read its range directly on a dial.

The first experimental model of the radar is a box about the size of a portable typewriter fitted with a pistol grip and an 11 inch radar dish to aim the search beam. Controls are in easy reach on the back surface of the set.

-more-

The operator monitors the sounds and, if necessary, he can attach an auxiliary unit to the set for visual display. This gives more detailed information on the distance and character of a suspect target.

The entire system is powered by a lightweight belt battery that lasts through 12 hours of continuous operation. For prolonged surveillance from a strategic location, the set can be mounted on a small tripod.

The tiny radar is extremely easy to operate, and it takes only a little practice for an operator to distinguish the characteristic sounds of different moving targets.

The radar employs advanced miniature circuitry throughout and contains only two tubes. All other tube functions are performed by tiny transistors and other semiconductor devices.

It is the first radar of its kind light enough to be carried and operated by a single soldier. It was built by the Army Signal Corps to prove that a flashlight radar was feasible for front-line surveillance missions.

The set was conceived, designed and built by a team of engineers headed by Harold Tate (Fair Haven) at the Signal Laboratory's Advanced Radar Developments Branch, which is directed by John Ackerman (Neptune).

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NEWS RELEASE
PLEASE NOTE DATE

DEPARTMENT OF DEFENSE
OFFICE OF PUBLIC AFFAIRS
Washington 25, D. C.

IMMEDIATE RELEASE February 28, 1962 NO 294-62
OXford 71252

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Such movements can be detected even through fog, darkness, and light foliage.

The new radar is aimed like a flashlight. It can search for targets at ranges over a mile and a quarter. When the operator hears a target, he can read its range directly on a dial.

The first experimental model of the radar is a box about the size of a portable typewriter fitted with a pistol grip to aim the search beam. Controls are in easy reach on the back surface.

The operator monitors the sounds and, if necessary, he can attach an auxiliary unit to the set for a visual display. This gives more detailed information on the distance and character of a suspect target.

The entire system is powered by a light-weight belt battery that lasts through twelve hours of continuous operation. For prolonged surveillance from a strategic point, the set can be mounted on a small tripod.

The tiny radar is extremely easy to operate and takes only a little practice for an operator to distinguish the characteristic sounds of different moving targets.

MORE

Electronic Ignition For Your Car

Boat Electronics —What's New

Servicing Those Color Circuits

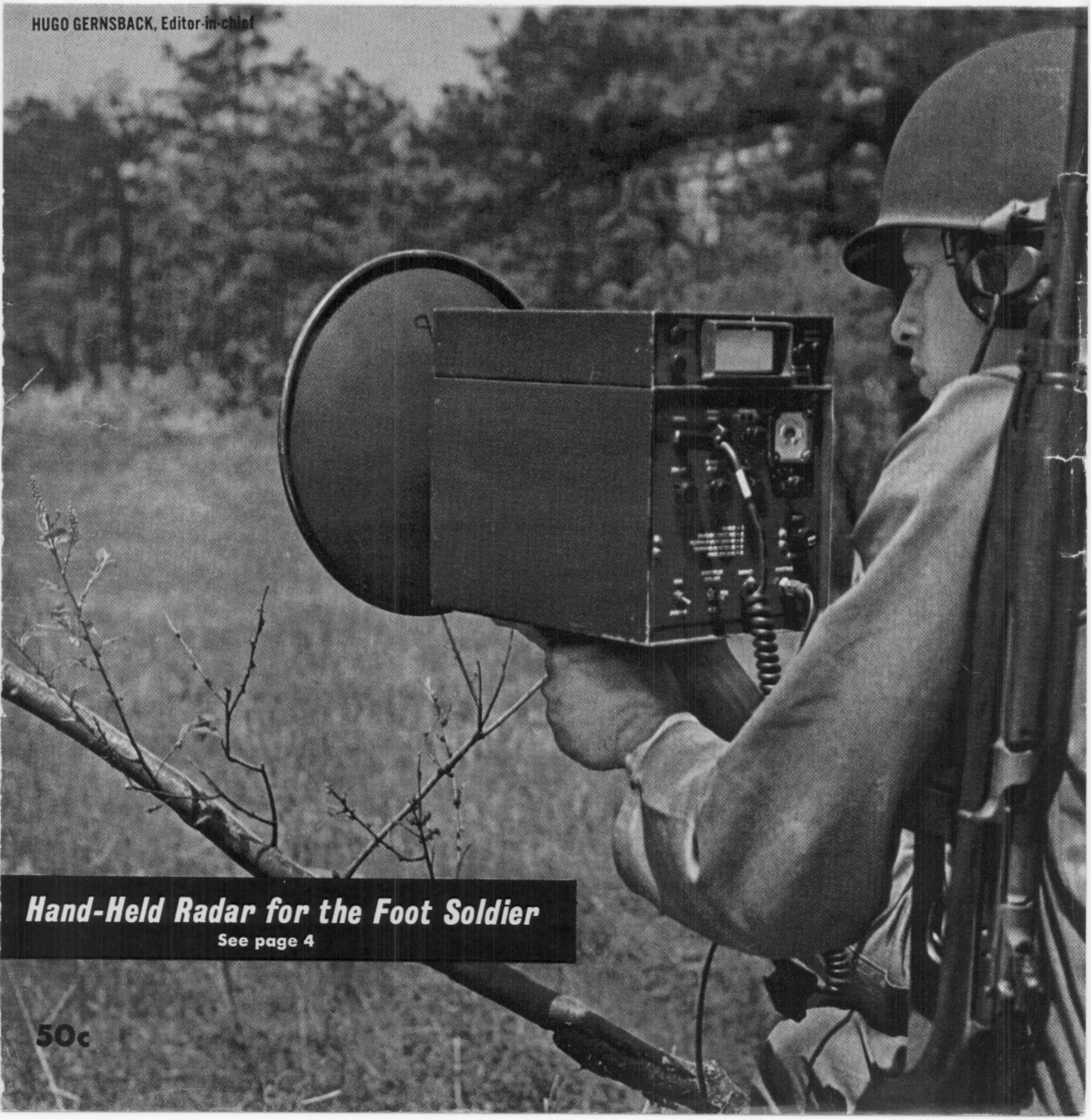
Highway Radar Nabs Speeders

Radio-Electronics

JULY

TELEVISION • SERVICING • HIGH FIDELITY

HUGO GERNSBACK, Editor-in-chief



Hand-Held Radar for the Foot Soldier

See page 4

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